223 Analysis of "cost drivers" for health care services use in cystic fibrosis patients: the experience of the Milan Cystic Fibrosis Center

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Objectives: To identify and model – from the perspective of the NHS – the main "cost drivers" for health care use in CF patients, to facilitate a more rational management of resources and a better understanding of the economic impact of the introduction of new treatments.
Methods: The dataset used for this study was the one collected by Colombo et al. [*Adv Ther* s 12325-013-0008-5 (2013)], which includes 165 consecutive patients seen during the period March–July 2009 at the CF center of Milano (Lombardy) and followed for one year. Nineteen anamnestic and treatment related parameters were tested as explanatory variables for the total yearly cost(s) of the patient borne by the NHS. The analysis was performed by means of multivariate LS regression.
Results: The best fitting model ($r^2 = 0.73$; adjusted $r^2 = 0.71$) was as follows:
Log(total cost) = 9.485 – 0.657·(pancreatic sufficiency) – 0.013·FEV1 + 0.950·(use of dornase) + 0.931·(use of inhalatory antibiotic maintenance treatment) + 0.029·(age at diagnosis) – 0.377·(meconium ileus).
The p value for the intercept and the first 4 parameters was <0.0004, for the last two was <0.07.
Conclusion: Some of the findings are essentially in line with what was previously reported by similar studies, even though the impact of dornase on the cost seems less relevant ($r^2 = 0.64$ without dornase). Other parameters (such as for example gender, BMI, age, age at diagnosis and a positive history for meconium ileus), which in the studied population seem to have a different relevance, warrant further analysis and investigations.

224 Improving CF inpatient admissions using a value stream mapping approach

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Objectives: Cystic Fibrosis admissions are challenging, often there is a mismatch between patient and staff expectations of service. Historically hospitals have evolved processes of service delivery, rarely reviewed for value to patients. The aim of this project was to systematically identify improvements to admissions.
Methods: The Value Stream Mapping evaluation requires that a process has a clear start and end point, in this case: the time from the decision to admit a child to the discharge report. Within that journey each contact with the patient is mapped, using a core group of stakeholders, including professionals and parents. For each mapped event

1. the parents describe the purpose of that event and rate service received as – satisfactory, dissatisfactory or a delighter (beyond expectations), referred to as the "voice of the customer".
2. The health professional (HP) is asked, what they do, why, barriers, and effective use of skills.

Verbatim interviews of 7 parents and all HP's were transcribed and reduced to overlapping themes using thematic analysis.
Results: Along the parent journey, 6 events were identified as satisfactory, 6 as delighters, and 8 as dissatisfying. Staff identified 8 events needing improvement. Four distinct areas of overlap were identified; pre-admission, day of admission, daily routine and discharge. Core-working groups were set up to implement changes.
Conclusion: The changed inpatient pathway will be evaluated with the same methodology in 6 months. A business evaluation methodology lends itself to medical service delivery and can identify both valuable and stress-inducing areas of service provision to improve use of resources.

225 French CF Quality Improvement Program (QIP): the experience of Rennes adult CF Centre

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Background: Based on the North American experience, Rennes CF centre involved in the French QIP in September 2012.
Objectives: Improve the FEV1 % in the adults over 30 years.
Methods: After establishing a QIP Steering committee, we analysed the patient registry data for the 85 adults patients followed in our centre. The multidisciplinary team decided to focus on the population aged over 30 years in 2012, because their FEV1 % median value was lower than the national median value (50.8% vs 60.5%). We noticed that patients over 30 years old with a low FEV1 also had a low BMI (n = 40). We focused on the 10 patients with FEV1 less than 50%. All these patients also had a severe nutrition status (lower than 18/kg/m^2).
Results: We intensified the process of care by increasing the number of clinic visits with the dietetician and the number of educational program sessions. We elaborated a tool pointing out the relationship between FEV1 and BMI, using 4 colors (red, orange, yellow and green). This tool, named "spir-weight" allowed the patient to better understand the possible link between the two parameters. It is used at each visit, to review and discuss the combined evolution of the two parameters.
Conclusion: After one year involvement in the QIP, we can notice that all those patients have a better understanding of their disease, and we plan to enlarge this education to all the patients followed in our adult centre. Data on patient's outcomes will be available by June 2014.

226 A work load study to determine the proportion of time spent on delivering rescue vs. prevention clinical care in adults with cystic fibrosis

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Background: 'Rescue' care involves reactive unplanned emergency care i.e. intravenous antibiotics and hospitalisations. 'Prevention' involves planned care i.e. adherence support aiming to keep people well to avoid 'rescue' care. Half of people with CF (PWCF) take <40% of their treatments. This results in poor outcomes and leads to rescue therapy which is expensive and requires multidisciplinary (MDT) resources. Supporting adherence is crucial but takes time and planning. Understanding the care provided by the MDT is important to ensure resources are being used effectively. It is important that PWCF are being given every opportunity to stay well and prolong life through prevention therapy.
Objectives: Explore the proportion of MDT time spent delivering rescue vs. prevention care.
Methods: A work load study was performed to evaluate the clinical service. This involved gathering MDT time data and distributions. Observational data was collected over 3 days to understand how resources are used to deliver rescue and prevention care. Following this categories of regular tasks were created with barcodes attached. The MDT were then able to quickly and easily record their own activities using barcode scanners over a 2-week period.
Results: 15 members of the MDT were assessed. Overall 80% of clinical care was spent delivering rescue therapy.

	Physiotherapists	Dietitians	Outpatient nurses	Inpatient nurses
Rescue	66%	57%	96%	100%
Prevention	34%	43%	4%	0%

Conclusion: A disproportionate amount of time and resources are spent delivering rescue care and this is unlikely to change unless teams prioritise prevention activities such as adherence support.